



HAWAII and PACIFIC ISLANDS

Introduction and General Description

Since 1994, the Partners for Fish and Wildlife Program has contributed approximately \$666,000 to non-State and non-Federal lands within the State of Hawaii. A variety of habitats have been restored, protected, and maintained with the voluntary assistance of landowners and other cooperators.

In Hawaii, proactive incentives to protect species habitats such as the Partners Program provide a viable alternative to regulation. Our experience has shown that increasing cooperation with local communities is essential for long-term conservation in Hawaii and the Pacific Islands.

Habitats of Special Concern

The Hawaiian Islands are among the most geographically isolated islands in the world (more than 2500 miles from the nearest land mass.) They were born from volcanic origins at the bottom of the Pacific Ocean. Through erosional processes over 70 million years, thousands of unique ecosystems and species evolved. Though only a few plants and animals could establish themselves through long distance dispersal mechanisms, they began to

Hawaii's rainforests are home to some of the rarest plants and forest birds on earth.



become successful in many different habitats. Some of these plants and animals, like the curved lobelia flowers and down-curved beaks of some Hawaiian honeycreepers, co-evolved with one another to form extraordinary examples of pollination biology and evolution.

The Hawaiian Islands are home to nearly 30 percent of the threatened and endangered species currently listed in the United States. More than 100 Hawaiian plants and 27 birds have become extinct in the last 200 years, and as many as half of Hawaii's 800 species of snails have been extirpated.

The decline and extinction of native Hawaiian flora and fauna is a result of a variety of factors, perhaps most significant of which is the introduction of alien plants and animals that prey upon, compete with and spread disease to native species.

Given the uniqueness of Hawaii's flora and fauna and the speed with

which they are being lost, it is important that the Pacific Islands Ecoregion, through the Partners Program, restore some of these unique ecosystems that will benefit listed and other native species.

Some of the ecosystems that have been targeted by the Partners Program for restoration:

Cave Ecosystems - provide habitat for listed invertebrates.

Bog Ecosystems - contain a diverse array of rare plant species.

Island Watersheds - protect streams and forests through proactive community initiatives.

Dryland Forests - represent some of the most critically endangered ecosystems in the State.

Wetlands - provide valuable habitat for endangered waterbirds.

Anchialine ponds - a unique brackish water wetland that is home to a rare shrimp.



Anchialine pools are unique habitats for rare invertebrates, endangered waterbirds, and plants.

Intentional and accidental introduction of invasive alien plants and animals into Hawaii began 1,500 years ago with Polynesian voyagers, and was greatly expanded with the arrival of Europeans. This continues today virtually unabated.

Invasive alien species have seriously impacted federally listed threatened and endangered species and degraded native ecosystems on all islands in the Pacific.

Many species are able to take advantage of Hawaii's mild subtropical climate and nearly continuous growing seasons. Of particular concern are plants and animals that dominate large tracks of land, create significant disturbance, and prevent native species from regenerating.

Conservation Strategies

Ecosystem Planning

In the Pacific Islands, an

Threats approach is based on a landscape planning process. The Partners for Fish and Wildlife Program is one of a number of different programs that are used on any parcel of land identified from this planning process. We work with private landowners identified in this planning process who are willing to voluntarily restore degraded habitats.

Inter-programmatic Coordination

The Partners Program usually works with highly degraded habitats and attempts to bring back natives in areas that are suitable to conservation. The Partners Program staff are knowledgeable of other conservation programs and they provide this information to all potential partners.

On oceanic islands, opportunities are available to restore both terrestrial and marine habitats.

Wetland Restoration ***(\$500-\$1500 per acre)***

The first Partners project in Hawaii was the fencing and restoration of a wetland on the southeastern coast of Maui. The project provided habitat for listed wetland birds through the removal of alien fish and planting of native wetland plants. The restoration of unique anchialine ponds on the island of Hawaii helps to protect rare Hawaiian shrimp as well as provide habitat for listed wetland bird species.

Forest Restoration

(\$500-\$3000 per acre)

Fencing out non-native ungulates (hoofed animals, such as pigs and goats) is key to any restoration effort in Hawaii. Restoration of the endangered palila (a bird) habitat on the island of Hawaii has begun with a fencing project on lands of the Kamehameha Schools.

Ungulate exclusion will enable restoration of dryland forest habitat that is home to seven rare plants (four of them endangered), the Hawaiian hoary bat, nene goose, and the endangered Blackburn's sphinx moth.

Fence construction and feral (i.e., domesticated animals that have become wild over several generations) ungulate removal at the summit of the Koolau mountains on Oahu helps protect and restore 100 acres of habitat benefitting five listed plants and two taxa of listed tree snails.

Cave Restoration ***(\$1000-3000 per acre)***

Restoration and protection of two caves on the island of Kauai protects two listed cave animals, a blind wolf spider and its prey, a blind cave amphipod.



Cave ecosystems provide a suitable environment for the endangered Koloa Cave wolf spider and Kauai Cave amphipod.

Constructing gates at the cave entrances prevents human disturbance and destruction of fragile cave habitat. Planting trees above the caves helps provide roots that penetrate the cave ceiling and provide food for the listed cave invertebrates.

Community-based Efforts
(\$500-1000 per acre)

Working with a Native Hawaiian organization with leases to Hawaiian homelands, the Partners Program has helped to restore nearly 1,000 acres of native dryland forest.

A local community on the island of Molokai developed a 1,000-acre fencing project through a community empowerment zone planning process. The Partners Program is supporting this multi-party effort to remove feral ungulates, control alien plants, and reduce soil erosion.

Watershed partnerships encourage private and public organizations to work cooperatively to reduce erosion, improve water quality, and develop forest restoration plans.

Critical Habitats
(\$500-1000 per acre)

Partnerships with private landowners is crucial to the conservation of native ecosystems throughout the State.

The Hawaii Community-based Conservation Initiative is focused on developing conservation practices on private lands as a possible alternative to Critical Habitat designation.

Partners

- National Park Service
- Natural Resources Conservation Service
- Biological Resources Division
- Urban Development Program
- Department of the Army
- Hawaii Department of Forestry and Wildlife
- Department of Hawaiian Homelands
- Department of Health
- University of Hawaii
- Department of Public Safety
- Tri-Isle RC&D
- East Molokai Watershed Partnership
- West Maui Watershed Partnership
- East Maui Watershed Partnership
- Koolau Watershed Partnership

- Lanai Watershed Partnership
- Maui County Board of Water Supply
- Honolulu County Board of Water Supply
- The Nature Conservancy of Hawaii
- Kamehameha Schools
- National Tropical Botanical Gardens
- Alexander and Baldwin Living Indigenous Forest Ecosystems
- Haleakala Ranch
- Maui Pineapple Company
- Ulupalakua Ranch
- Sports Shinko Group
- Lanai Company
- Hui Malama Pono O Lanai
- Native Hawaiian Plant Society
- McCandless Ranch
- Kaupo Ranch
- Kukuiula Development Corporation
- Dunbar Ranch
- Ducks Unlimited

Accomplishments

T Nearly 10,000 acres of forest, shrublands, and wetlands have been restored and protected from alien plants and animals.

T Endangered species are being conserved on private lands with the help of private landowners.

T Participation in 5 watershed partnerships has allowed cooperative conservation planning and has led to the development of new Partners projects.

Future Needs

- Restore 100 acres of limestone forest and 200 acres of wetlands in Guam, Rota, Saipan and American Samoa.
- Restore 2,000 acres of forest habitat on the island of Hawaii.
- Restore 300 acres of shrubland and stream habitat in Kohala, Hawaii.
- Restore 100 acres of forest on the island of Molokai to reduce erosion into ponds and marine ecosystems.
- Restore 200 acres of wetlands on the island of Kauai.
- Restore 10 acres of cave habitat on the island of Kauai.
- Encourage the development of additional watershed partnerships in Hawaii and the Pacific Islands (2000 acres).
- Continue partnerships with private landowners on Kauai, Maui and Hawaii who own lands proposed as critical habitat and cooperatively develop land restoration strategies for these areas (500 acres).



Student and community participation is integral to Hawaii's restoration efforts

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